

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of

Amendment of Section 73.622(b),
Table of Allotments,
Digital Television Broadcast Stations
(Hagerstown and Silver Spring, Maryland)

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MM Docket No. 02-244
RM-_____

To: Chief, Media Bureau

PETITION FOR RULEMAKING

Entravision Holdings, LLC ("Entravision"), the licensee of Station WJAL(TV), Channel 68, Hagerstown, Maryland (the "Station" or "WJAL"), by its attorneys and in accordance with Sections 1.401, 1.420(i) and 73.623 of the Commission's Rules,¹ hereby petitions to initiate a rulemaking proceeding for the purpose of amending the Table of Allotments for Digital Television Stations, in Section 73.622(b) of the Commission's Rules (the "DTV Table of Allotments"), to change the community of license for the Station's paired DTV Channel 16

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¹ The Commission has indicated that requests to change DTV channels, communities of license, and transmitter sites should be submitted pursuant to the DTV allotment modification procedures provided for in Section 73.623 of the Commission's Rules. See *In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service*, 13 FCC Rcd 7418, 7516-7517 (1998).

allotment from Hagerstown to Silver Spring, Maryland.² In support thereof, Entravision states as follows.

I. The Proposal is in the Public Interest

Entravision submits that the proposed change in the DTV community of license for the Station is in the public interest. First, the proposed change would eliminate interference to WJAL-DT from Station WFDC-DT, Arlington, Virginia. WFDC-DT and WJAL-DT are allotted to adjacent channels (15 and 16). Based on the facilities proposed in their applications for paired DTV facilities,³ WJAL-DT and WFDC-DT would cause interference to each other in excess of that provided for by the Commission's Rules. This resulted in the Media Bureau designating the two applications as mutually exclusive. *See Public Notice*, DA 02-461, released March 1, 2002. In response thereto, Entravision has agreed to have WJAL-DT accept prohibited interference from WFDC-DT in order to be able construct and operate a digital facility on a timely basis. *See Joint Request for Approval of Settlement Agreement by and among Entravision and WTMW License Partnership, G.P.*, filed with the Commission on May 30, 2002.⁴

Consistent with the instant proposed change in the DTV Table of Allotments, Entravision intends to move the transmitter site for WJAL-DT to the antenna supporting structure in the District of Columbia, where WFDC-DT has proposed to operate. *See FCC File No. BPCDT-19991028ADH*. The intended transmitter move would enable WJAL-DT to overcome interference from WFDC-DT through the co-location of WJAL-DT's Channel 16 facility with

² As demonstrated by the Engineering Statement attached hereto as Attachment 1, the existing allotment at Hagerstown, Maryland and the proposed Silver Spring, Maryland allotment are mutually exclusive, thereby triggering the provisions of Section 1.420(i) of the Commission's Rules, which allow the changes to be made without permitting competing applications. *See Engineering Statement* at 8.

³ *See File Nos. BPCDT-19991101ADQ and BPCDT-19991028ADH*.

⁴ The Commission has not yet acted on the Joint Request.

the Channel 15 facility of WFDC-DT.⁵ This would allow WJAL-DT to provide optimal service to the public without the encumbrance of agreed-to interference in excess of that otherwise permitted.

Second, while the applicability of allotment priorities in the DTV context has yet to be addressed by the Commission, the proposed DTV community change results in a preferential arrangement of allotments pursuant to the television allotment priorities set forth by the Commission in the analog context.⁶ Specifically, the proposed change would further the Commission's second allotment priority by bringing a first digital television broadcast station to the Silver Spring community.⁷ Further, the proposed transmitter site move and reallocation will result in an optimum use of the broadcast spectrum as it will result in a net population gain of 4,264,749 for WJAL-DT. See Engineering Statement at 7.

At the same time, the proposed reallocation would not leave Hagerstown unserved or even underserved.⁸ As demonstrated by the Engineering Statement, the proposal also will not create any white or gray areas.⁹ Commission precedent supports the grant of a television

⁵ The analog and digital facilities of WFDC are in turn co-located with WRC-TV and WRC-DT, Washington, D.C. WJAL-DT's proposed co-location complies with the DTV-to-analog adjacent-channel separation requirement in Section 73.623(d)(2) of the Commission's Rules.

⁶ The television allotment priorities are: (1) provide at least one television service to all parts of the United States; (2) provide each community with at least one television broadcast station; (3) provide a choice of at least two television services to all parts of the United States; (4) provide each community with at least two television broadcast stations; and (5) assign any remaining channels to communities based on population, geographic location, and the number of television services available to the community from stations located in other communities. See *Sixth Report and Order on Television Allocations*, 41 FCC Rcd 148, 167 (1952).

⁷ Silver Spring is a recognized community of license and is served by Station WPLC(AM), Silver Spring, Maryland.

⁸ Hagerstown, Maryland would continue to be served by local Television Stations WHAG-TV and WWPB.

⁹ The vast majority of the "loss area" created by the proposal would continue to be served by at least five broadcast signals, and the entire "loss area" would continue to receive four signals. See

reallotment proposal, such as this one, that provides a proposed community with its first local television broadcast station (priority two) without depriving the existing community of license of its transmission service. See (*International Falls and Chisholm, Minnesota*, 16 FCC Rcd 17864, 17865 (MMB 2001); *Elk City, Oklahoma and Borger, Texas*, 16 FCC Rcd 16467, 16468 (MMB 2001).

Finally, the separation of WJAL's analog and digital communities does not in any way contravene the public interest. In keeping with the DTV transition, WJAL intends to discontinue its analog operations in Hagerstown if this rulemaking request is granted. As these analog operations are in the upper 700 MHz band, grant of the proposed reallotment will advance the Commission's band clearing efforts for the 700 MHz band.¹⁰ And, as pointed out above, Hagerstown would continue to receive local analog service (and could continue to expect digital television service) from Stations WHAG-TV and WWPB as well as broadcast signals from other Stations in the Washington D.C. DMA. For all of these reasons, the proposed change to WJAL-DT's community of license clearly serves the public interest.

II. The Proposal Satisfies Applicable Technical Requirements

Pursuant to Section 73.622(a), this request to amend the DTV Table of Allotments to change the community of license for WJAL-DT must be evaluated for technical acceptability under the engineering criteria set forth in Section 73.623(c) of the Commission's Rules. As demonstrated by the attached Engineering Statement, the proposed change complies with the

Engineering Statement at 8. As evidenced by the net gain, the substantial service gains outweigh losses in this instance.

¹⁰ See *Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, Third Report and Order*, 16 FCC Rcd 2703 (2001); *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, 15 FCC Rcd 20845 (2000); *First Report and Order*, 15 FCC Rcd 476 (2000); *Notice of Proposed Rulemaking*, 14 FCC Rcd 11006 (1999).

engineering criteria contained in Section 73.623(c). The Station's proposed transmissions fall below the two percent/ten percent threshold set forth in Section 73.623(c)(2). They also comply with the principal community coverage requirements of Section 73.625(a), as specified in Section 73.623(c)(1).

More specifically, in the analog context, the proposed WJAL-DT operation will not cause more than *de minimis* interference to Station WBOC –TV, Salisbury, Maryland or any other area analog broadcast station. Further, there are no DTV interference issues implicated by the WJAL-DT proposal, other than the aforementioned co-location with WFDC-DT. In the Class A context, the Engineering Statement demonstrates that no material interference concerns arise with respect to Stations WMJF-LP, Towson, Maryland and WKRP-LP, Washington, D.C.

Finally, with respect to land mobile operations, Section 73.623(e) of the Commission's Rules requires that "all affected land mobile licensees consent to the requested action" in connection with proposals, such as the instant one, which do not comply with the spacing requirements in Section 73.623(e). The Commission acknowledged the difficulty of complying with these spacing requirements and the absence of the need to secure land mobile users' consent when it made the existing WJAL-DT allotment, which itself violates the spacing requirements,¹¹ and did not obtain any such consents.¹² As implicitly recognized by the Commission's action here, the consent requirement is virtually impossible to satisfy due to the large number of users and licensees in the Washington area.

In informal discussions with the Commission in the past, the FCC staff has recognized the difficulty in implementing the consent requirement. Further, the Commission has recently demonstrated its continued willingness to waive land mobile spacing requirements in order to

¹¹ See Engineering Statement at 4, n. 1.

¹² No parties opposed the allotment of Channel 16 to Hagerstown.

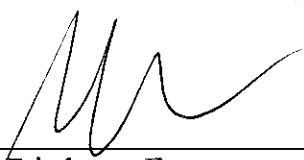
accommodate the transition to digital broadcasting. *See Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59)*, 17 FCC Rcd 11613, 11634 (2002) (directing the Media Bureau to consider waiver of applicable land mobile distance separation criteria in case under consideration); *Blanco, Texas*, DA 02-2281 (M.B. September 18, 2002) (noting Commission's direction to consider waiver of applicable land mobile distance separation criteria). The Engineering Statement provides evidence of actual operating situations in which DTV stations have been constructed and operate in harmony with adjacent land mobile facilities. *See Engineering Statement at 4-6*. There is no reason to believe that such a result will not occur here as well.

Entravision submits that since the Commission has already allowed Channel 16 to be allotted within the prohibited zone for Channel 17 land mobile users, it should do so again. Accordingly, Entravision hereby requests a waiver of Section 73.623(e). The Engineering Statement demonstrates the absence of interference to land mobile operations from the proposed WJAL-DT operation, and, accordingly, the various considerations in favor of the requested change warrant a waiver of the rules. *See WAIT Radio v. FCC*, 418 F. 2d 1153 (D.C. Cir. 1969) (subsequent history omitted) (grant of waiver must better serve public interest than application of the rule).

WHEREFORE, for the foregoing reasons, Entravision Holdings, LLC respectfully requests that the Commission issue a Notice of Proposed Rule Making proposing the change in the community of license for Station WJAL(TV)'s DTV Channel 16 allotment from Hagerstown to Silver Spring, Maryland.

Respectfully submitted,

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October 3, 2002

ATTACHMENT 1



ENGINEERING STATEMENT

IN SUPPORT OF

PETITION FOR RULE MAKING

ENTRAVISION

HAGERSTOWN, MD

Background

It is proposed to modify the city-of-license of a Hagerstown (MD), DTV channel allotment through the rule making process. Presently, analog station WJAL-TV serves Hagerstown on its Channel 68 allotment; this allotment was paired with DTV Channel 16 by the Commission in its Sixth Report & Order. This engineering statement has been prepared in support of a Petition for Rule Making seeking the following changes to Section 73.622 of the Commission's rules:

	<u>Present</u>	<u>Proposed</u>
.		
.		
.		
<u>Maryland</u>		
.		
.		
Hagerstown	16, 44, 55	44, 55
.		
.		
Silver Spring	—	16
.		

This is a proposal to modify an allotment included in the initial DTV Table of Allotments and, therefore, is analyzed under the interference requirements of Section 73.623(c)(2) and not under the spacing requirements of Section 73.623(d).



Site

Silver Spring, (MD), the modified city of license, is adjacent to the Washington, D.C. "antenna farm area" and it is proposed to site the modified facility at this location. Because of interference considerations, it would be technically superior to co-locate the Channel 16 facility with the analog (Channel 14) and DTV (Channel 15) facilities of WTMW (Arlington) which are, in turn, co-located with WRC-TV and WRC-DT (Washington). For the purposes of this engineering study, it assumed that the WJAL-DT facility would be co-located on the WTMW TV/DT tower at:

38-56-24 N
77-04-54 W

with an antenna radiation center of:

240 m AMSL

INTERFERENCE STUDIES – BROADCAST

Detailed interference studies were conducted to determine the maximum power that could be used in compliance with Section 73.623(c) using the procedures set-forth in OET-69.

Analog Stations

The results of this analysis indicate that a directional antenna is required to protect WBOC-TV (Salisbury, MD) and, using the pattern described in Appendix I, a maximum ERP of 100 kW will not cause interference above de minimis levels to WBOC or any other full-service broadcast station. Stations considered in the study in addition to WBOC-TV include WUTB-TV (Baltimore) and several low-power, non-Class A facilities.

DTV Stations

There are no DTV station interference issues; however, the facility must be co-located with WTMW (Channel 14/15) to avoid adjacent channel interference. It is noted that the



proposed co-location would comply with Section 73.623(d)(2) with respect to the DTV-to-analog adjacent-channel separation requirement.

Class A Stations

There are two Class A stations which must be considered.

One, WMJF-LP at Towson (MD) operates on Channel 16. The proposed interference contour (40 dBu) will completely overlap the protected service contour (74 dBu) of the Class A station (See Figure 1). However, the existing Channel 16 DTV allotment for WJAL-DT also completely overlaps the Class A station contour (See Figure 2.) Since the station already receives 100% interference (based on the FCC definition of interference) it is not possible to have more than 100% (even though the magnitude of the proposed interfering signal may be greater).

The second issue is with WKRP-LP, a station authorized to operate on Channel 23, at a site less than a mile away; this is a 7-channel relationship with Channel 16. Since the proposed facility is inside the WKRP-LP contour there is, in theory, an interference issue affecting a very small area but, since the stations are virtually "co-located", there should be no real interference concerns. (This low power station may be "dark" and, further, its request for Class A status appears not to have been granted; if either is the case, it would not be entitled to protected status as a Class A station.)

COVERAGE

The principal city of Silver Spring would be fully encompassed by the predicted 48 dBu (F50,90) contour of the proposed facility and thus would comply with the provisions of Section 73.625(a)(1) from the proposed reference coordinates. (See Figure 3.)



INTERFERENCE – LAND MOBILE

TV Channel 17 is allocated for land mobile radio (LMR) use in the Washington (DC) area. In accordance with Section 73.623(e), adjacent channel DTV stations may not be located within 176 km of the reference coordinates for the land mobile facility which are (38-53-51N, 77-00-33W in this case, or approximately 5 km from the proposed TV reference coordinates).^{1/} However, this rule also permits consideration of proposals which do not comply if "... all affected land mobile licensees consent to the requested action." Because of the number of users and licensees (65 have been identified)^{2/} who operate facilities in the Washington area, it is submitted that this is an onerous and a virtually impossible to-comply-with condition. In support of a request for waiver of 73.623(e), the petitioner is submitting the following technical discussion of a proposed interference mitigation methodology as an alternative to the land mobile licensee consent provision.

Existing Situations

There are numerous examples of Channel 14 analog and digital stations operating successfully in a crowded land-mobile environment. Recently constructed facilities include WKBD-DT (Detroit), KERA-DT (Dallas), KAPX-TV (Albuquerque), WTIN-TV (Ponce, Puerto Rico) and WPXG-TV (Suring, WI); likewise Channel 69 facilities in Providence, Rhode Island, and Miami, FL, have been successfully deployed in harmony with adjacent land mobile facilities. The spectral relationship of the Channel 69 facilities (*vis a vis* LMR users in the 806 - 812 MHz band) is no different than that of a Channel 16 facility operating adjacent to LMR facilities in the Channel 17 band (488-494 MHz).

This firm was involved in the land mobile interference assessment and mitigation for WKBD-DT in Detroit. In this case, WKBD-DT was allotted Channel 14 for its DTV operation. The use of the 460-470 MHz LMR band in Detroit – as in most major urbanized areas – is

^{1/} It is noted that the FCC Channel 16 DTV allotment for WJAL-DT has reference coordinates which also "violate" this requirement by 38 km.

^{2/} See attached list.



extremely heavy. In fact, studies revealed that a few system base stations are located less than a mile away from the TV transmitter site and operating on frequencies above 469.9 MHz, i.e., less than 100 kHz removed from the TV channel band-edge. It may be instructive to review the procedures used in this DTV implementation.

Studies were undertaken to quantify the susceptibility of LMR receivers to interference from adjacent channel DTV transmitters; the studies included calculations based on consideration of LMR receiver bandwidth and the spectrally-adjusted energy predicted to be present from a DTV transmitter operating in conformance with the Commission's DTV "mask" requirements. These calculations were then verified in bench-tests using typical LMR base station equipment and a low power DTV transmitter (as an "interference" source).

Based on the database of FCC authorized LMR facilities, calculations were performed to determine the minimum DTV transmitter attenuation (assuming an ERP of 200 kW) to "protect" the adjacent LMR receivers. This information – after application of a suitable margin – was then used to set the performance criteria for a filtering system to be designed and built by Dielectric. In general, it was determined that attenuation values 50 dB excess of the minimum DTV mask requirements were needed [i.e., a reduction of DTV energy 100 dB below the average DTV power level (measured in a 500 kHz bandwidth)] in order to be able to co-exist with LMR receivers. While the filter implementation introduced new DTV transmitter performance concerns due to high attenuations and sharp roll-off characteristics (e.g., group delay and SNR reduction because of transmitter adaptive equalization), these issues were satisfactorily resolved by the equipment suppliers.

The LMR licensees with facilities most likely to be affected were notified and consulted about the proposed construction. Initial "on-air" testing schedules were cooperatively established and arrangements were made to measure and monitor the LMR receivers as the power of the new DTV transmitter was slowly increased to full operating power level. There was an understanding that the appearance of any objectionable impact to an LMR licensee's receiver would be cause for immediate termination of the DTV signal transmission (or an appropriate reduction in power to an interference-free level).



The result of this pre-planning, design and implementation effort was that the Channel 14 DTV transmitter was commissioned with no (zero) interference complaints from the LMR licensees and has continued in daily operation without any complaints for over 20 months.

The purpose of this discussion has been to demonstrate that it is possible to construct a DTV transmitter using modern, available filtering technology which is capable of providing a "clean" adjacent channel spectrum for use by LMR licensees on a non-interfering basis. It is proposed to employ the same planning / implementation approach and technology for the Channel 16 installation at Silver Spring.

In summary, the plan would be to:

1. Obtain FCC approval for modification of the Channel 16 allotment. (Rule Making)
2. Initiate studies to identify all LMR licensees / facilities using the Channel 17 spectrum.
3. Calculate DTV attenuation required to protect each LMR facility.
4. Identify marginal cases and initiate further studies and/or measurements to verify protection requirements.
5. Prepare specifications for a filtering system and transmitter which will meet interference objectives and prepare a report demonstrating that all licensed LMR facilities are calculated to be protected. (Submit to FCC and LMR licensees.)
6. Notify all LMR licensees within 50 km of the proposed facility and provide each with a copy of operating specifications and expected filter performance (with an "impact" calculation for each facility.)
7. Following installation of DTV transmission equipment, conduct detailed measurements of output spectral quality and verify conformity with design objectives (while operating into non-radiating, "dummy" load.)
8. Following successful completion of tests and measurements outlined in "7", notify LMR licensees of the intention to conduct "on-air" equipment testing and establish protocols for conducting tests / measurements.



9. Following successful completion of on-air testing and resolution of any LMR interference complaints (including the provision of receiver filters to LMR licensees, if required), prepare a report for the FCC on design, testing and problem resolution.

10. Request Program Test Authority and file application for covering license.

Area & Population Analyses

The relocation of the station to Silver Spring will result in a shift in areas and populations served. The following table is a summary of the gains and losses under each scenario. See Figure 4 for a depiction of existing and proposed coverage areas.

Area / Population Summary Table

	<u>Area</u> (sq km)	<u>Population</u> (41 dBu)
Pending DTV Application	29,061.6	2,069,772
Proposed Silver Spring	12,882.9	6,334,521
Pending App Losses*	25,673.7	1,424,066
Proposed Rule Making Gains**	9,495	5,688,815

* Area / Population not served by new proposal.

** New Area / population served by new proposal

Service From Other Stations

As noted above, there is a projected loss of service from WJAL-DT in an area of 25,674 sq km within which an estimated 1,424,066 persons reside (2000 Census). This "loss area" is

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Therefore, it is clear that the rule making proposal is mutually exclusive with both the WJAL-DT allotment and application.

Conclusion

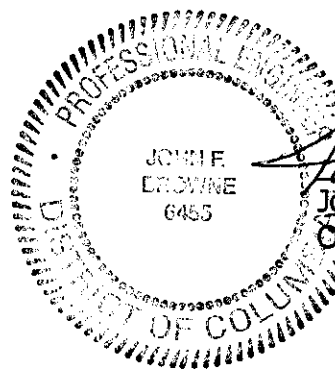
For the reasons stated, it is believed that the changes proposed for the Channel 16 allotment can be made without causing interference to any existing or proposed TV stations or land mobile facilities.

Proposed Parameters

Location	38-56-24 NL
	77-04-54 WL
Power	100 kW (DA)
Height	173 m (HAAT)

Certification

I hereby certify that the foregoing report or statement was prepared by me but may include work performed by others under my supervision or direction. The statements of fact contained therein are believed to be true and correct based on personal knowledge, information and belief unless otherwise stated; with respect to facts not known of my own personal knowledge, I believe them to be true and correct based on their origin from sources known to me to be generally reliable and accurate. I have prepared this document with due care and in accordance with applicable standards of professional practice.



John F.X. Browne
John F.X. Browne, P.E.
October 2, 2002

MAV/10-1-02/2-2010

Database Listing
Federal Communications Commission Licensees
Land Mobile Channel 17 Washington, DC

Action Courier Service Inc.
Amax Corporation
American Broadcasting Companies Inc.
Anderson, Paula Faith
Andrews, Becky
Barwood, Inc.
Bridges, Bobby
Bridges, Bobby J.
Bridges, Frank L.
Brooks, Danny
Brooks, Glenda
Brooks, Gregory
Brooks, Samuel
Brooks, Warren
Capitol Radio Communications Inc.
Carter, Arthur C.
Carter, Bonnie G.
Carter, Jaime K.
Champion Communication Services Inc.
Chayce N. You Inc.
Fairfax, City of
Fairfax, County of
Frederick, City of
Frederick, County of
Great Eastern Communications Company
Holmes, Ellen L.
Inova Fairfax Hospital
Lambert, Christopher D.
Loudoun, County of

Love, Debra S.
Love, Wilma
M & R Taxi Company Inc.
Meyer, Robert C.
Montgomery County Government
Montgomery, County of
Montrose Realty Corporation
Mount Rainier, City of
Paynes Parking Designs Inc.
Phoenix Development Corp.
Preston, Roberta
R C Hawkins Construction Company Inc.
Satzman, Tina
Smith, Floyd
Stafford, County of
Stanley, Norman G.
State of Maryland
Stull, Charles C.
Takoma Park, City of
Truland Service Company Inc.
Truland Service Corp. DBA Truland Service
Tweeden, Jack
University Park, Town of
Upper Occoquan Sewage Authority
Venable, Suellen
Virginia, Commonwealth of
Warrenton-Fauquier Joint Comms. Ctr.
Washington Metropolitan Area Transit Authority
Welch, Volena B.
Zaccarino, Terry L.

Proposed WJAL-DT 40 dBu and WMJF-L 74 dBu Contour Overlap

John F.X. Browne & Associates PC



FIGURE 1

WJAL-DT (Allotment) 40 dBu and WMJF-L 74 dBu Contour Overlap

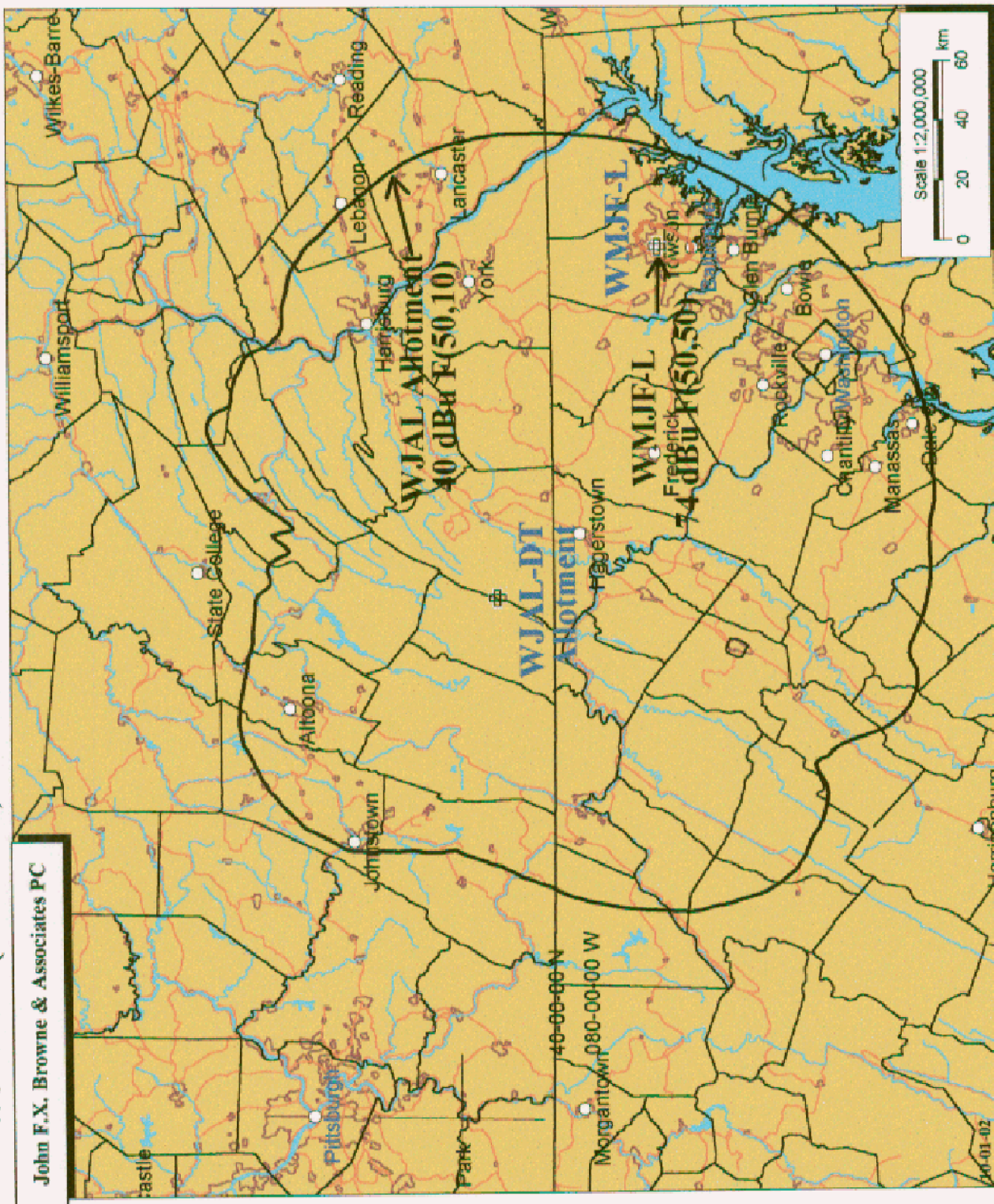


FIGURE 2

Proposed CH 16 Coverage C170 Pattern rotated 125 Degrees and 100kW

John F.X. Browne & Associates PC

NEW16

Latitude: 38-56-24 N
Longitude: 077-04-54 W
ERP: 100.00 kW
Channel: 16
Frequency: 485.0 MHz
AMSL Height: 243.0 m
Elevation: 105.06 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Prop Model: Longley/Rice
Receiver Ht AG: 9.1 m
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
Date 6-13-02

48.0 dBu
41.0 - 48.0

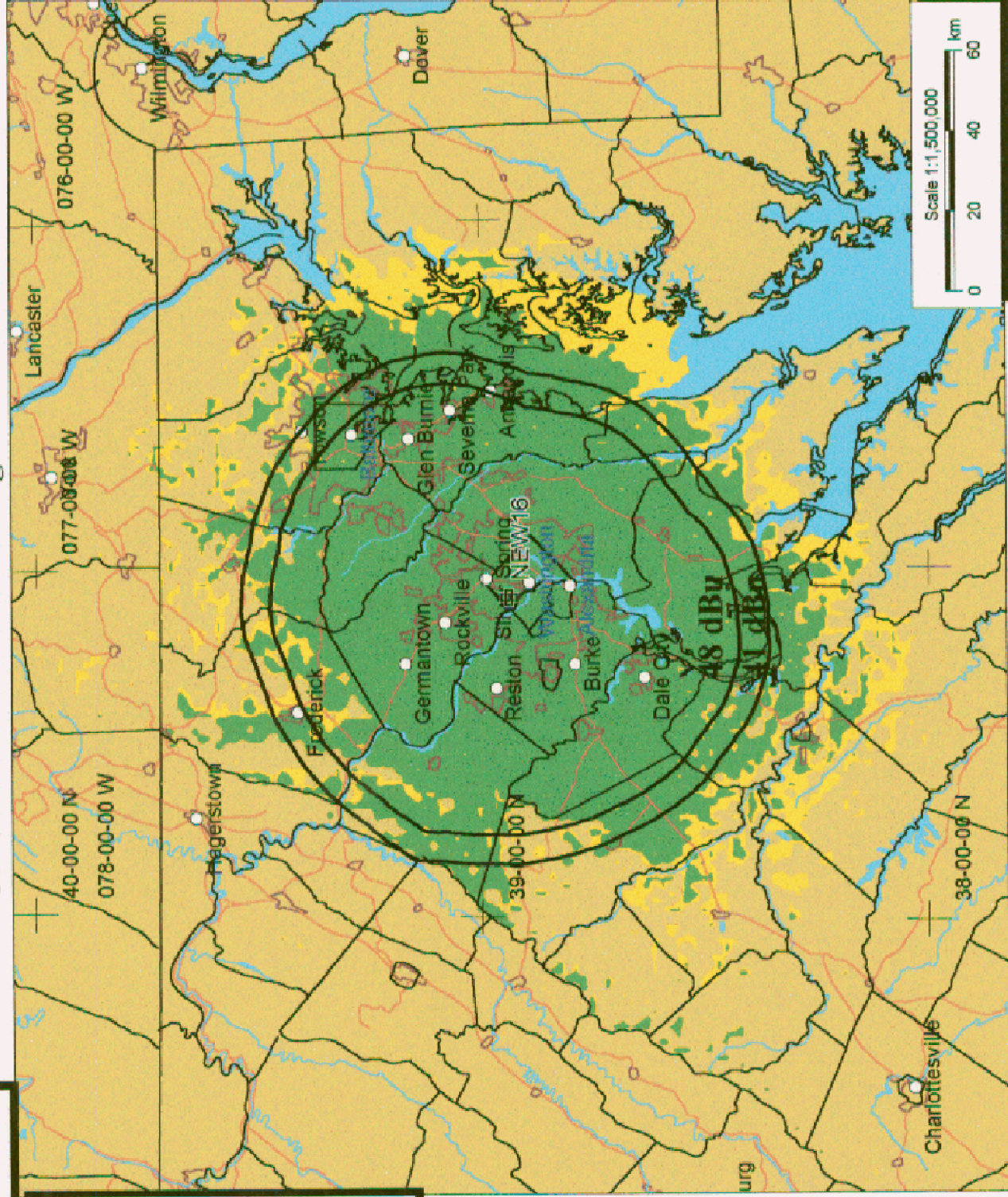


FIGURE 3

WJAL-DT(App) and WJAL-DT (Proposed Silver Spring) Service Areas

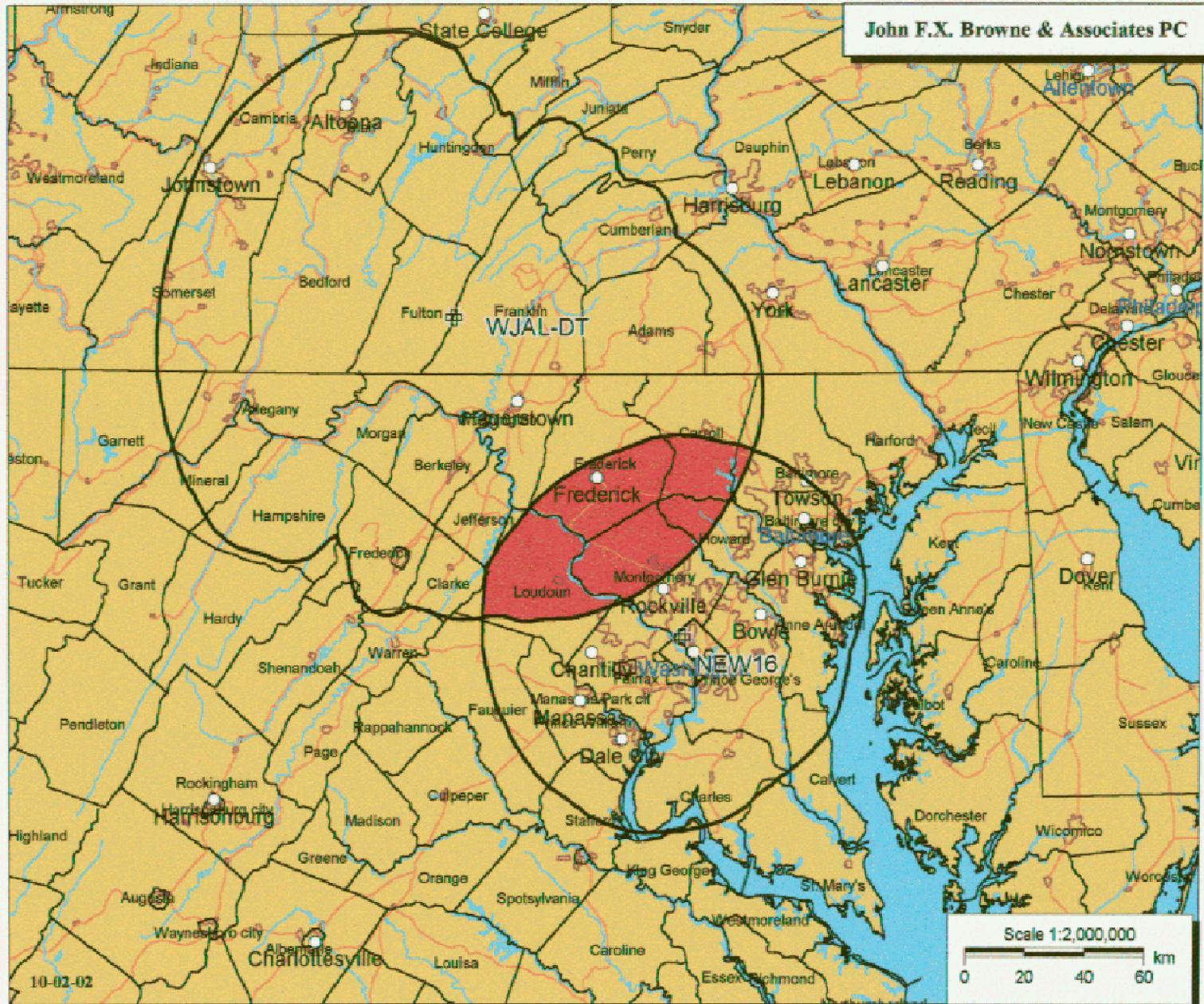


FIGURE 4

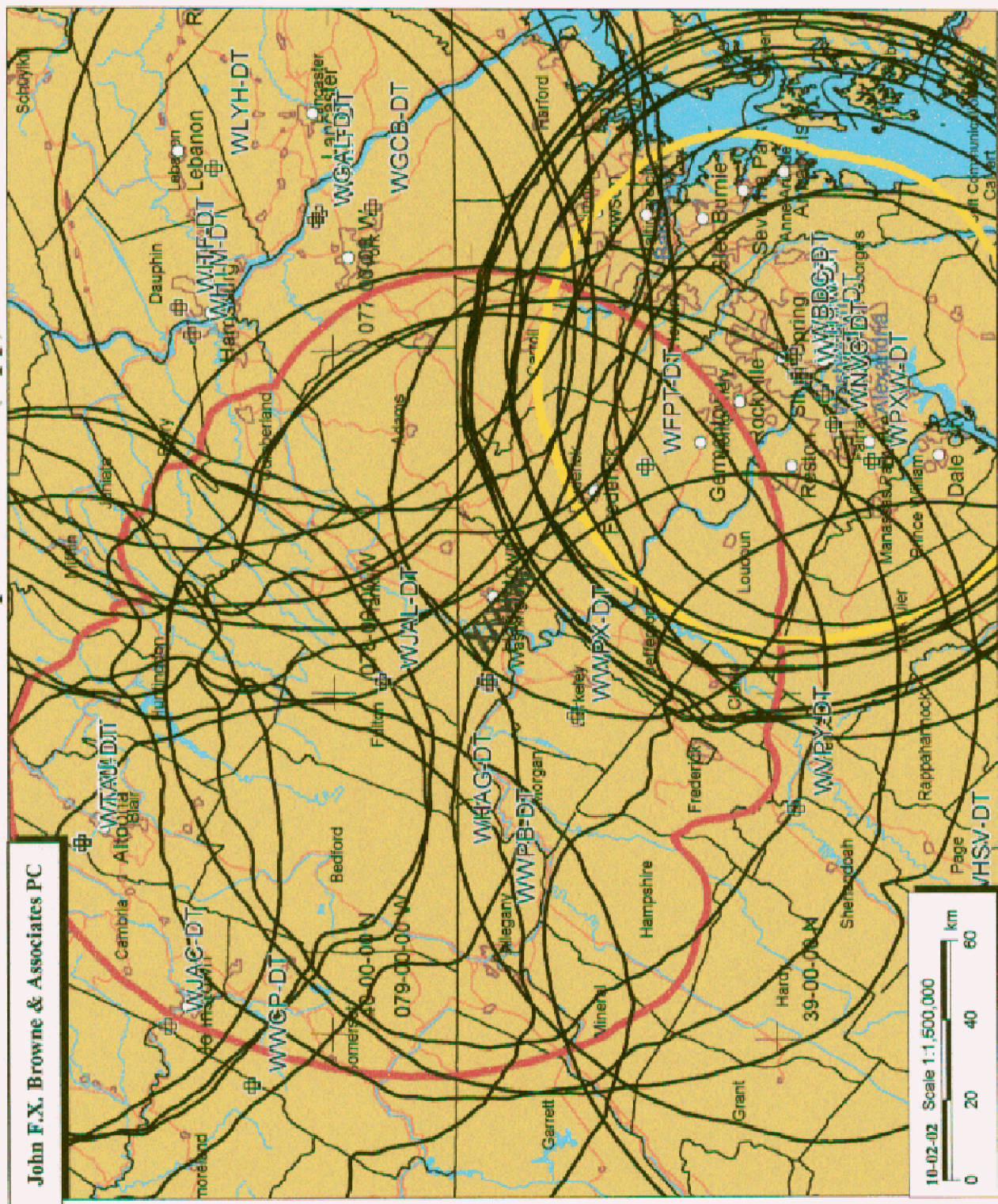
STATIONS THAT OVERLAP WJAL-DT CP

<u>Station</u>	<u>Network</u>	<u>Location</u>	<u>Channel</u>
WATM-DT	ABC	Altoona, PA	24
WKBS-DT	IND	Altoona, PA	46
WTAJ-DT	CBS	Altoona, PA	32
WTMW-DT	IND	Arlington, VA	15
WNVC-DT	ETV	Fairfax, VA	57
<u>WFPT-DT</u>	<u>ETV</u>	<u>Frederick, MD</u>	<u>28</u>
WVPY-DT	ETV	Front Royal, VA	21
<u>WHAG-DT</u>	<u>NBC</u>	<u>Hagerstown, MD</u>	<u>55</u>
<u>WWPB-DT</u>	<u>ETV</u>	<u>Hagerstown, MD</u>	<u>44</u>
WHP-DT	CBS	Harrisburg, PA	4
WITF-DT	ETV	Harrisburg, PA	36
WHSV-DT	ABC	Harrisburg, VA	49
WHTM-DT	ABC	Harrisburg, PA	10
WJAC-DT	NBC	Johnstown, PA	34
WWCP-DT	FOX	Johnstown, PA	29
WGAL-DT	NBC	Lancaster, PA	58
WLYH-DT	IND	Lancaster, PA	23
WPXW-DT	IND	Manassas, VA	43
<u>WWPX-DT</u>	<u>IND</u>	<u>Martinsburg, WV</u>	<u>12</u>
WGCB-DT	IND	Red Lion, PA	30
WBDC-DT	IND	Washington, DC	51
WDCA-DT	IND	Washington, DC	35
WETA-DT	ETV	Washington, DC	27
WHUT-DT	ETV	Washington, DC	33
WJLA-DT	ABC	Washington, DC	39
WPSX-DT	ETV	Washington, DC	15
WRC-DT	NBC	Washington, DC	4
WTTG-DT	FOX	Washington, DC	36
WUSA-DT	CBS	Washington, DC	34
WPMT-DT	FOX	York, PA	47

(stations underlined and in bold cover cross-hatched area)

TABLE 1

John F.X. Browne & Associates PC



WJAL-DT (App) - red WJAL-DT (Proposed) - yellow

FIGURE 5

WJAL-DT (App) -red WJAL-DT (Proposed) - yellow **FIGURE 6**

Appendix I

Dielectric Cardioid Antenna

C170 Pattern

Dielectric

Date
Call Letters
Location
Customer
Antenna Type

17 Sep 2002
WJAL
Silver Spring

Channel 16

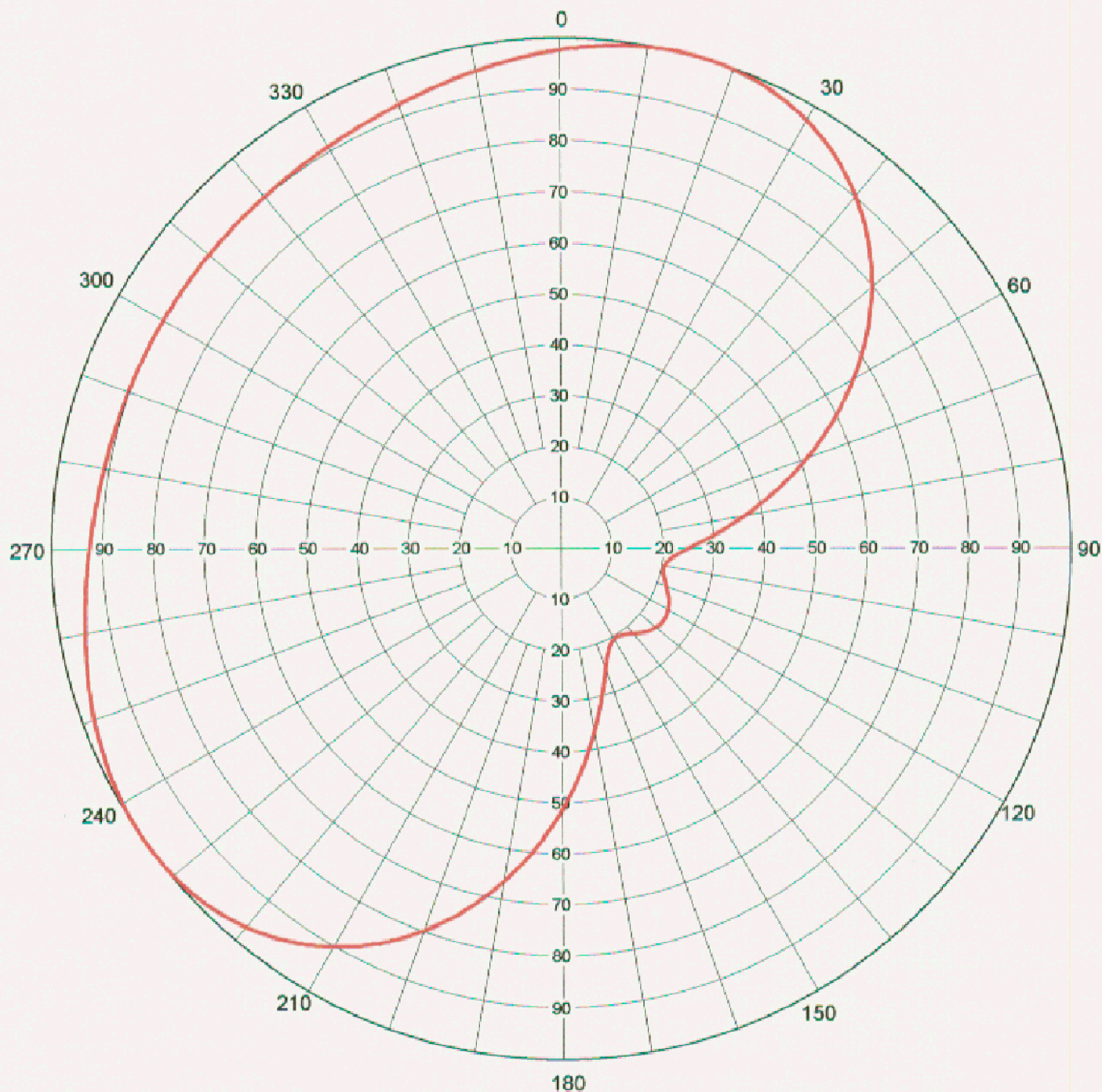
AZIMUTH PATTERN

RMS Gain at Main Lobe
Calculated / Measured

1.70 (2.30 dB)
Calculated

Frequency
Drawing #

485 MHz
TFU-C170



Remarks: NULL @ 125 DEGREES

Antenna Pattern - WJAL-DT Proposed

Post-Rotation Antenna Pattern....

Effective Field

Azimuth (deg)

5.0	0.988
15.0	1.000
25.0	0.987
35.0	0.940
45.0	0.854
55.0	0.733
65.0	0.588
75.0	0.437
85.0	0.302
95.0	0.218
105.0	0.207
115.0	0.232
125.0	0.245
135.0	0.232
145.0	0.207
155.0	0.218
165.0	0.302
175.0	0.437
185.0	0.588
195.0	0.733
205.0	0.854
215.0	0.940
225.0	0.987
235.0	1.000
245.0	0.988
255.0	0.963
265.0	0.936
275.0	0.917
285.0	0.905
295.0	0.900
305.0	0.899
315.0	0.900
325.0	0.905
335.0	0.917
345.0	0.936
355.0	0.963

Rotation Angle = 125

